

In re Patent Application of:
JIANG ET AL
Serial No. 09/816,319
Filed: MARCH 22, 2001

REMARKS

Claims 9, 10, 25, 26, 84 to 108 and 139 are currently pending. All of the claims have rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 6,369,924 (Scharf et al), in view of United States Patents Nos. 6,160,647 (Gilliland et al), 5,923,115 (Mohr et al) and 5,647,748 (Mils et al). This rejection is respectfully traversed, and favorable reconsideration of the present application in light of the discussion to follow is respectfully requested.

The essential difference between the invention as claimed in the rejected claims, i.e. independent claim 84, and claims 9, 10, 25, 26, 85-108 and 139, dependent thereon, and the devices disclosed by Scharf et al and Gilliland et al is that the transceiver module of applicants' claimed invention includes: 1- a daughterboard printed circuit providing specific control circuitry for each of the optical sub-assemblies; and 2- a motherboard printed circuit providing overall control circuitry for the transceiver, as well as electrical connection to the host device. This modular arrangement provides a very substantial savings in manufacturing costs, in particular, when the laser or photo-detector is replaced or completely changed, since only the specific daughterboard has to be replaced-not the entire circuit board, as in Gilliland. In addition, overall control systems for the transceiver, including the specific electrical connector, e.g. pins or a card edge connector, can be replaced or completely altered without affecting the two daughterboards.

On the other hand, the device disclosed by Scharf et al has two totally independent circuit boards, with no

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interaction therebetween. Accordingly, no overall control is possible, nor is it possible to easily change the electrical connector, without changing the entire circuitry, i.e. both of Scharf et al's circuit boards. The arrangement disclosed by Scharf et al, not having a motherboard within the housing with overall control function, is not practical for the latest generation of transceiver modules, which requires several different types of overall control and monitoring. The host printed circuit board 22 disclosed by Scharf et al is not part of the transceiver module 25, and is not connected to the daughterboard "within the housing", as defined in the rejected claims. The host printed circuit board 22 of Scharf et al is separate from the transceiver module 25 and is never coupled to the PCBs 26 and 27. Moreover, the host printed circuit board 22 of Scharf et al does not include a connector for electrically connecting the transceiver module to itself.

The specific arrangement of the motherboard and daughterboards according to applicants' claimed invention enables the motherboard to be easily connected to the host device, no matter what form of electrical connector is used, and enables the daughterboards to interconnect with the motherboard and the optical sub-assemblies providing the maximum amount of available printed circuit board area, as well as facilitating assembly. The housing, motherboard and daughter boards form an enclosure with several isolated rooms or sections, enabling various control operations to be performed independently from the others with limited crosstalk.

In particular, providing the ground plane on the backside of the daughterboards positions the shielding between the circuitry on the first daughterboard and the circuitry on the second daughterboard, thereby providing EMI and crosstalk

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shielding therebetween. Scharf et al do not disclose this particular arrangement, as their device requires an additional EMI shield 35, which is unnecessary in the present invention, and as particularly defined in dependent claim 9. Elimination of the EMI shield reduces parts and assembly costs, providing a competitive advantage over competitors. None of the secondary references to Gilliland et al, Mohr III et al, Mills et al, Poplawski et al, and Dell et al remedies the above-described shortcomings of Scharf et al, with respect to the basic features of applicants' invention of claim 84. As such, it is respectfully submitted that all of the claims remaining in the application are in condition for allowance. Early and favorable consideration of claims 9, 10, 25, 26, 84-108 and 139 is earnestly solicited.

Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 50-1465 and please credit any excess fees to such deposit account.

Respectfully submitted,



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CERTIFICATE OF FACSIMILE TRANSMISSION

I HEREBY CERTIFY that the foregoing correspondence has been forwarded via facsimile number 571-273-8300 to the COMMISSIONER FOR PATENTS, this 21 day of February 2006.

